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(71)Applicant : **MARI:KK**
HONGO FUJIYA
(72)Inventor : **TANI YOICHI**
HONGO FUJIYA

(54) LACTIC FERMENTATION DRINK OF POMEGRANATE

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a new pomegranate lactic fermentation drink which effectively uses squeezed residues of pomegranate juice having been scrapped, has a high medicinal effect, and can easily be drunk.
SOLUTION: This pomegranate lactic fermentation drink is characterized by containing a fermentation liquid obtained by fermenting a lactic fermentation raw liquid containing a pomegranate seed water extract and a pomegranate juice as main components with lactobacillus.

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CLAIMS

[Claim(s)]
[Claim 1]A lactic fermentation drink of a pomegranate containing fermented mash produced by making carry out lactic acid fermentation of the undiluted solution for lactic acid fermentation which contains a pomegranate seed water extract and pomegranate fruit juice as the main ingredients by lactic acid bacteria.
[Claim 2]A lactic fermentation drink of a pomegranate containing fermented mash produced by making carry out lactic acid fermentation of the undiluted solution for lactic acid fermentation containing a pomegranate seed water extract, pomegranate fruit juice, and oligosaccharide by lactic acid bacteria.
[Claim 3]The mixing ratio of a pomegranate seed water extract and pomegranate fruit juice extracts 100g for a pomegranate seed water extract with 1000 ml of water in the dried powder end of a pomegranate seed, A lactic fermentation drink of the pomegranate according to claim 1 which are 6 / 4 - 2/8 in a mass ratio when it converts into pomegranate seed water extraction liquid which consists of a filtered filtrate and pomegranate fruit juice is converted into pomegranate fruit juice which diluted pomegranate fruit juice of the BRIX value 65**1 10 times (capacity).
[Claim 4]A lactic fermentation drink of the pomegranate according to any one of claims 1 to 3 which is a lactic fermentation drink which has a sugar absorption control operation.
[Claim 5]A manufacturing method of a lactic fermentation drink of the pomegranate according to any one of claims 1 to 4 cooling, adding lactic acid bacteria activated to this, cultivating, and carrying out lactic acid fermentation after heat-sterilizing an undiluted solution for lactic acid fermentation which contains a pomegranate seed water extract and pomegranate fruit juice as the main ingredients.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the lactic fermentation drink of a pomegranate. The pomegranate which is a raw material is utilized without futility in more detail, and it is easy to drink, and palatability is good and medical effects are related with the lactic fermentation drink of a high pomegranate.
[0002]
[Description of the Prior Art]Conventionally, vegetables and fruits are used as juice and drunk widely. Are drunk by many by expecting drug effect in them. Pomegranate juice is one of them, since the estrogen which is one sort of a female sex hormone contains in the pomegranate, the effect over human menopausal disorders is pointed out and the consumption is increasing. However, the fruits of a pomegranate are used for pomegranate juice and the seed of strained lees is discarded in large quantities at the time of processing.
[0003]On the other hand, for the purpose, such as an improvement of flavor and physical properties, improvement in preservation nature, and the health effect, the lactic fermentation drink of vegetables and must using lactic acid bacteria crosses variably, and is used. However, it is not known about the lactic fermentation drink using the seed of the pomegranate.
[0004]
[Problem(s) to be Solved by the Invention]This invention was made in light of the above-mentioned circumstances, the purpose utilizes effectively the strained lees of the pomegranate fruit juice discarded conventionally, moreover, it is high and there are medical effects in providing the drink of a new pomegranate which is easy to drink.
[0005]
[Means for Solving the Problem]In order that this invention persons may solve an aforementioned problem, as a result of inquiring wholeheartedly, a water extract of a seed which is the strained lees which were discarded conventionally in manufacturing juice of a pomegranate is not deactivated, and can carry out lactic acid fermentation of the lactic acid bacteria efficiently, While tracing becoming fermented drinks, if pomegranate fruit juice is added to the pomegranate aforementioned seed water extract and it ferments, it will be easy to drink, and will find out that drug effect improves synergistically to a surprising thing, and came to complete this invention.
[0006]That is, this invention is a lactic fermentation drink of a pomegranate containing fermented mash produced by making carry out lactic acid fermentation of the undiluted solution for lactic acid fermentation which contains a pomegranate seed water extract and pomegranate fruit juice as the main ingredients by lactic acid bacteria.
[0007]This invention is a lactic fermentation drink of a pomegranate containing fermented mash produced by making carry out lactic acid fermentation of the undiluted solution for lactic acid fermentation containing a pomegranate seed water extract, pomegranate fruit juice, and oligosaccharide by lactic acid bacteria further.
[0008]The mixing ratio of said pomegranate seed water extract and pomegranate fruit juice, 1000 ml of water extracts 100g for a pomegranate seed water extract in the dried powder end of a pomegranate seed, When it converts into pomegranate seed water extraction liquid which consists of a filtered filtrate and pomegranate fruit juice is converted into pomegranate fruit juice which diluted pomegranate fruit juice of the BRIX value 65**1 10 times (capacity), it is preferred that it is 6 / 4 - 2/8 in a mass ratio.
[0009]A lactic fermentation drink of a pomegranate of this invention has a sugar absorption

control operation.
[0010]After heat-sterilizing an undiluted solution for lactic acid fermentation in which a manufacturing method of a lactic fermentation drink of a pomegranate of this invention furthermore contains a pomegranate seed water extract and pomegranate fruit juice as the main ingredients, it is preferred to cool, to add lactic acid bacteria activated to this, to cultivate, to carry out lactic acid fermentation, and to obtain.
[0011]
[Embodiment of the Invention]Hereafter, the embodiment of this invention is explained in full detail.
[0012]The lactic fermentation drink of the pomegranate of this invention contains the fermented mash produced by making carry out lactic acid fermentation of the undiluted solution for lactic acid fermentation which contains a pomegranate seed water extract and pomegranate fruit juice as the main ingredients by lactic acid bacteria.
[0013]The pomegranate which extracts the pomegranate seed water extract and pomegranate fruit juice which are used in this invention is a pomegranate of the department of a pomegranate, and is scientific name PUNIKA. It is a fallen-leaves tree of granum TOUMU (Punica granatum).
[0014]First, the undiluted solution for lactic acid fermentation used in this invention is explained in full detail. The undiluted solution for lactic acid fermentation used for the lactic fermentation drink of the pomegranate of this invention uses a pomegranate seed water extract and pomegranate fruit juice as the main ingredients.
[0015]The seed of a pomegranate is extracted with a conventional method, using water as a pomegranate seed water extract used in this invention. It is efficient to use using the strained lees from which the fruit juice generally drunk, for example as pomegranate juice as a seed of a pomegranate was extracted. The example of manufacture of a pomegranate seed water extract is shown below.
[0016](Example of manufacture) The pomegranate juice strained lees [Nari Run Foodstuffs (Teheran) company make] which are pomegranate seeds were ground after 40 ** and 48-hour desiccation. adding 300 ml of distilled water to this powder 100g -- the homogenization during 2 minutes (Polytron, PCU) -- it was referred to as back 1000ml, and churning extraction was performed at 5 ** after neglecting it to a room temperature for 2 hours for 24 hours. Subsequently, the filtrate obtained by filtering with double gauze was used as pomegranate seed water extraction liquid. Subsequently, sodium bicarbonate adjusted pH to 6.5-7.0.
[0017]In this invention, the pomegranate seed water extraction liquid which extracts 100g with 1000 ml of water in the dried powder end of the pomegranate seed shown in said example of manufacture, and consists of a filtered filtrate is also called "pomegranate seed standard water extraction liquid."
[0018]As pomegranate fruit juice used in this invention, it is pomegranate fruits juice. Pomegranate fruit juice can be obtained from the fruits of a pomegranate with the disposal method usually performed. After washing a pomegranate and specifically removing a hide and a seed, for example, it heats and the method of performing centrifugal processing (juice) and subsequently performing germicidal treatment further, is mentioned.
[0019]Thus, it may condense if needed, and in use, this concentrate is diluted to remain as it is, a concentrate is diluted with distilled water etc. to suitable concentration, and the pomegranate seed water extract and pomegranate fruit juice which are obtained can be used as the main ingredients of the raw material for lactic acid fermentation of this invention. In this invention, by the time lactic acid fermentation is presented with said pomegranate seed water extract and

pomegranate fruit juice, when there will be time, it is possible to put these into the bag made from polyethylene, etc., and to keep it with a freezer. It is thawed and used when using frozen goods for lactic acid fermentation.

[0020]Although the mixing ratio of the pomegranate seed water extract in the undiluted solution for lactic acid fermentation used for the lactic fermentation drink of the pomegranate of this invention and pomegranate fruit juice is chosen arbitrarily, it is 6 / 4 - 2/8 in a mass ratio preferably. It is 4 / 6 - 2/8 still more preferably. The mass of the pomegranate seed water extract in said mixture ratio is converted into pomegranate seed standard water extraction liquid, and pomegranate fruit juice is converted into the pomegranate fruit juice which diluted the pomegranate fruit juice of the BRIX value 65**1 10 times (capacity). A BRIX value is the number of grams of the sucrose (sugar) in the solution [in / at the unit of the concentration of a sucrose (sugar) solution / 20 ** of pomegranate fruit-juice solutions] 100g here.

[0021]Although the undiluted solution for lactic acid fermentation used for the lactic fermentation drink of the pomegranate of this invention uses a pomegranate seed water extract and pomegranate fruit juice as the main ingredients, unless the effect of this invention is spoiled, it is also possible to contain other optional components other than a pomegranate seed water extract and pomegranate fruit juice.

[0022]As such an optional component, acids, such as sugars, such as oligosaccharide, sucrose, fructose, and glucose, perfume, citrate, and malic acid, etc. can be mentioned, for example.

[0023]In this invention, sugar, especially oligosaccharide are preferably blended among said arbitrary components. Growth (growth) of lactic acid bacteria is promoted by combination of sugar, especially oligosaccharide, and it is sensuously good and the high sweet taste of palatability is obtained.

[0024]Next, the fermented mash produced by making carry out lactic acid fermentation by lactic acid bacteria is explained in full detail. It is preferred to carry out heat sterilization treatment of the undiluted solution for lactic acid fermentation at about 90-120 ** preferably beforehand on the occasion of lactic acid fermentation.

[0025]All of lactic acid bacteria that are generally used for a lactic fermentation drink can be used for the lactic acid bacteria used for this invention. Specifically, for example The Lactobacillus Lactobacillus bulgaricus (Lactobacillus delbrueckii subsp. bulgaricus B-5b), Lactobacillus Lactobacillus acidophilus (Lactobacillus acidophilus L-54), Streptococcus Streptococcus thermophilus (Streptococcus salivarius subsp. thermophilus 510), It is a streptococcus RAKUTISU bacillus (Streptococcus lactis subsp. lactis 527) etc. These lactic acid bacteria can be obtained from for example, Japan Dairy Technical Association as a seed fungus. After these lactic acid bacteria's repeating culture several times in a skim milk culture medium 10% with a conventional method and improving the activity of each bacillus in advance of lactic acid fermentation, these are used for preparation of a starter.

[0026]Although lactic acid fermentation of the fermented mash used for the lactic fermentation drink of the pomegranate of this invention can be performed with a conventional method, a lactic starter is added and cultivated to the undiluted solution for lactic acid fermentation which contains pomegranate seed water extraction liquid and pomegranate fruit juice as the main ingredients, for example. After more specifically heat-sterilizing the undiluted solution for lactic acid fermentation which contains a pomegranate seed water extract and pomegranate fruit juice as the main ingredients, it cools, and lactic acid fermentation of the lactic starter activated to this is added, cultivated and carried out. The addition of a desirable lactic starter is about 2 ml to 100 ml of undiluted solutions for lactic acid fermentation. It is preferred that perform culture at 37 **

and it performs standing culture with humidistat most preferably at about 35-40 ** at about 25-45 ** for 15 hours for about 10 to 20 hours for about 5 to 25 hours.
[0027]Thus, since the lactic acid bacteria of the fermented mash obtained themselves contained in said fermented mash are useful, it can be used for the pomegranate lactic fermentation drink of this invention, with a biomass contained. Or it is also possible for filtration, centrifugal separation, etc. to remove the biomass of lactic acid bacteria from fermented mash, and to use this for the pomegranate lactic fermentation drink of this invention.
[0028]Unless the effect of this invention is spoiled, additives which are generally used for a drink thing, such as various nutrients, such as a vitamin, may be added to the lactic fermentation drink of the pomegranate of this invention. By this, a nutritive value is still higher, and it excels in nutritional balance, and can be considered as the lactic fermentation drink of the pomegranate which presents a good flavor.
[0029]
[Example]An example is given below and this invention is explained concretely.
[0030](Preparation of the Mother starter) The freeze-dried Lactobacillus Lactobacillus bulgaricus which came to hand from Japan Dairy Technical Association (Lactobacillus delbrueckii subsp. bulgaricusB-5b), Lactobacillus Lactobacillus acidophilus (Lactobacillus acidophilus L-54), Streptococcus Streptococcus thermophilus (Streptococcus salivarius subsp. thermophilus 510), The Mother starter (Mother starter) was prepared as follows from the skim milk culture (enclosed with the glass bottle.) of streptococcus RAKUTISU bacillus (Streptococcus lactis subsp. lactis 527) 4 strain.
[0031](1) The outside of the glass bottle was disinfected in alcoholic cotton 70%.
(2) The amyl seal was removed after disinfecting long-nose pliers in alcoholic cotton 70%.
(3) After carrying out the rubber stopper which was taken out after disinfecting a rubber stopper in alcoholic cotton 70%, added 5 ml of skim milk culture media created by following (7) using the pipette which sterilized promptly, and was taken out once again, the glass bottle was often shaken and it was made to dissolve.
(4) Each bacillus of the Lactobacillus Lactobacillus bulgaricus, Lactobacillus Lactobacillus acidophilus, and streptococcus Streptococcus thermophilus was cultivated at 37 ** after the dissolution for 18 hours, and the streptococcus RAKUTISU bacillus was cultivated at 30 ** for 18 hours. It checked after culture that the whole culture medium became yogurt-like and the bacillus was growing well.
(5) 2-3 drops were taken to 10-ml another skim milk culture medium with the sterilization pipette, and the culture contents in the glass bottle in which it did in this way and each lactic acid bacteria grew enough were cultivated on the conditions same once again as (4).
(6) When this operation was repeated twice further on condition of the above, the activity of the bacillus increased and the Mother starter full of a viability was obtained.
(7) A skim milk culture medium is ****** about what carried out autoclaving for 15 minutes 121 ** after having added 90 ml of distilled water, mixing and dissolving in 10 g of skim milk (the skim milk which does not contain an antimicrobial agent is used). Namely, about 10 ml of reduction skim milk was poured distributively to what sterilized the cotton plug (or silicone plug) by hot air about 30 minutes at 150-180 ** beforehand, and intermission thermal sterilization (121 **, 10 minutes) was carried out with autoclave on the 3rd.
[0032]Next, the reduction skim milk culture medium was taken and sterilized to the large-sized Erlenmeyer flask with a silicone plug which sterilized, and after cooling, it added, 2% of Mother starter was agitated well, and it kept at 37 **, it took out with coagulation, and refrigerated till

use. (Acidity check: About 0.7%)
[0033](Lactic-acid-bacteria growth examination in pomegranate seed water extraction liquid) Lactic fermentation drink preparation of the pomegranate of this invention was preceded, and the growing state of the lactic acid bacteria in pomegranate seed water extraction liquid was investigated. 2 ml of Mother starters of the Lactobacillus Lactobacillus bulgaricus added [after sterilization and after cooling at 30-40 **] said 100 ml of pomegranate seed standard water extraction liquid for 90 ** and 60 minutes, and the number of lactic acid bacteria and pH value by 24 hours were measured every 4 hours from this Mother starter addition (0 hour). By culture time, since the number of lactic acid bacteria was greatly different, it used the sample to 10^{6}-10^{11} according to time, having carried out stage dilution 10 times. According to time, the poured culture plate was produced using the BCP ** plate count agar medium using the diluent of a three-stage after pouring each dilution sample solution distributively on every 1-ml petri dish of two sheets each. It inverted, when agar became hard, and culture was performed at 35-37 ** for **3 hours for 72 hours. The yellow colony generated in the BCP ** plate count agar medium after culture was measured according to the standard plate count, and the number of lactic acid bacteria per 1 ml of samples was calculated. The pH value was measured using the glass electrode machine.
[0034]The result was shown in Table 1 and drawing 1.
[0035]
[Table 1]

	0時間	4時間	8時間	12時間	16時間	20時間	24時間
乳酸菌数	2.9×10^{7}	4.4×10^{7}	6×10^{8}	6.2×10^{9}	3.5×10^{9}	8.6×10^{8}	2.4×10^{7}
pH値	4.25	4.17	4.10	3.99	3.94	3.90	3.85

[0036]The number of lactic acid bacteria (number of micro organisms) increased from 4 time value linearly, and in 12 time value, 6.2×10^{9} of the maximum was reached and it increased 200 or more times to 0 time value so that Table 1 and drawing 1 might show. On the other hand, a pH value continued falling gently with time, and, henceforth [16 time value], fell or less to 4.0. This showed that lactic acid bacteria could fully grow in pomegranate seed water extraction liquid.
[0037](Growth examination of the lactic acid bacteria at the time of oligosaccharide addition) In order to examine the growth and the sweet taste of lactic acid bacteria to the time of oligosaccharide addition, said 100 ml of pomegranate seed standard water extraction liquid -- the oligosaccharide (beet oligosaccharide; made by Japan sugar beet confectionery incorporated company) 0, 1, and 3 -- and 5g added and the number of lactic acid bacteria and the pH value were measured to the backward one every 4 hours for 24 hours like the lactic-acid-bacteria growth examination in said pomegranate seed water extraction liquid. It sampled about these four additive areas at the time of culture 15 hours, and sweet taste was examined.
[0038]The result was shown in Table 2 and drawing 2.
[0039]
[Table 2]

		時間（時間）						
		0	4	8	12	16	20	24
ｵﾘｺﾞ糖	乳酸菌数(×10⁸)	0.2	0.6	10	82	30	1.6	9
0 g	pH値	6.55	6.40	6.21	5.90	5.45	5.17	4.98
ｵﾘｺﾞ糖	乳酸菌数(×10⁸)	0.4	0.5	17	79	43	28	17
1 g	pH値	6.55	6.35	6.02	5.69	5.24	5.14	4.95
ｵﾘｺﾞ糖	乳酸菌数(×10⁸)	0.3	0.6	13	85	48	38	25
3 g	pH値	6.65	6.32	5.73	5.08	4.58	4.33	4.24
ｵﾘｺﾞ糖	乳酸菌数(×10⁸)	0.3	0.6	16	91	49	45	35
5 g	pH値	6.64	6.14	5.68	5.14	4.51	4.23	3.97

[0040]Although the difference by the difference in the concentration of oligosaccharide addition was not seen to 12 time value, the difference was looked at by the number of micro organisms in it or subsequent ones, and the number of lactic acid bacteria (number of micro organisms) showed such a loose fall curve that there are many additions of oligosaccharide, so that Table 2 and drawing 2 might show. By 3 g of oligosaccharide, and a 5g additive area, with 24 time value, the pH value was set to 4.24 and 3.97, respectively, and fell more promptly. As a result of sampling about four additive area at the time of culture 15 hours, remarkable sweet taste was sensed by a 5g additive area, and the addition effect of oligosaccharide was seen notably.
[0041](Lactic-acid-bacteria growth examination in pomegranate fruit juice) Growth of the lactic acid bacteria in pomegranate fruit juice was investigated. 5 g of oligosaccharide was added to 100 ml of fruit juice which diluted the pomegranate fruit juice of the BRIX value 65**1 10 times (capacity), and the number of lactic acid bacteria and the pH value were measured to the backward one every 4 hours for 24 hours like the lactic-acid-bacteria growth examination in said pomegranate seed water extraction liquid.
[0042]The result was shown in Table 3 and drawing 3.
[0043]
[Table 3]

	0時間	4時間	8時間	12時間	16時間	20時間	24時間
乳酸菌数	2.8×10⁸	1×10¹¹	5.5×10⁹	1.5×10¹³	1.4×10¹¹	1.8×10¹²	3.3×10¹²
pH値	3.42	3.42	3.42	3.41	3.42	3.42	3.43

[0044]The number of lactic acid bacteria (number of micro organisms) fell with $5.5x10^9$ in 8 hours so that Table 3 and drawing 3 might show, but $1.5x10^{13}$ and the highest value were shown, and the increase was seen in 12 hours. Although it was falling in 16 hours compared with 12 hours, a big change was not seen after it. The pH value was as constant as about 3.42 through the full time belt. This showed that lactic acid bacteria could grow in pomegranate fruit juice.
[0045](Preparation of a lactic fermentation drink) The lactic fermentation drink of the combination formula of A-F shown in Table 4 was made as an experiment. It removed by filtering the solid content which carried out the mixture solution of the raw materials other than the Mother starter and perfume, and melted and remained (exposing cloth). Next, it heat-sterilized for 60 minutes and 85-90 ** cooled with the stream to 30-40 ** promptly. After cooling finished thoroughly, addition candle power mixing of the Mother starter and the perfume

was carried out at this. Subsequently, it poured distributively in the container which sterilized by hot air, and it cultivated for 15 hours and 37 ** of lactic fermentation drinks were obtained.
[0046]
[Table 4]

	A	B	C	D	E	F
ざくろ種子標準水抽出液	100ml	100ml	80ml	60ml	40ml	20ml
ざくろ果汁 ＊1	—	—	20ml	40ml	60ml	80ml
オリゴ糖 ＊2	5g	5g	5g	5g	5g	5g
マザースターター ＊3	2ml	2ml	2ml	2ml	2ml	2ml
香料 ＊4	0.1ml	0.1ml	0.1ml	0.1ml	0.1ml	0.1ml
スキムミルク ＊5	4g	—	—	—	—	—
安定剤 ＊6	0.2g	—	—	—	—	—

[0047]*1: Fruit-juice *2 which diluted the pomegranate fruit juice of the BRIX value 65**1 10 times (capacity) : beet oligosaccharide (made by Japan sugar beet confectionery incorporated company)
*3: Mother starter *4 of the Lactobacillus Lactobacillus bulgaricus : it is mixed *5:skim milk (made by Morinaga Milk Industry Co., Ltd.) at the rate of 1:1:2 about lemon, an orange, and vanilla essence.
*6: Neo soft AR-75 (made by TAIYO KAGAKU CO., LTD.)
[0048](Evaluation of a lactic fermentation drink) The pH value and organoleptics before and behind the fermentation of prototype A-F obtained by preparation of said lactic fermentation drink were done, and the lactic fermentation drink of this invention was evaluated. Organic-functions evaluation was performed as follows.
[0049](Sensory evaluation method) Organic-functions evaluation by 12 persons' panelist was performed using the manufactured lactic fermentation drink. The strength (sweet taste, acid taste) of the taste, the merit of a scent, the merit of a color, and also the whole overall evaluation were expressed for five steps of integers.
[0050]The result was shown in Table 5. Evaluation items were shown as 12 persons' average value.
[0051]
[Table 5]

	A	B	C	D	E	F
発酵前のpH	6.72	6.70	5.26	4.82	4.57	3.90
発酵後のpH	4.27	4.88	4.65	4.55	4.47	3.88
甘み	×	1.83	2.00	2.33	3.17	3.33
酸味	×	1.17	2.00	1.83	2.67	2.50
香りのよさ	×	1.00	1.67	1.83	2.00	2.17
色のよさ	×	1.50	1.50	2.50	2.17	2.17
総合	×	1.17	1.33	2.00	3.00	3.00
備考	安定剤ｽｷﾑﾐﾙｸ沈殿	豆乳の味、香り、ｼﾅﾓﾝ臭	豆乳の味、香り、ｼﾅﾓﾝ臭	豆乳の味、香り、ｼﾅﾓﾝ臭	良好	良好

[0052]It means among front that x did not carry out organic-functions evaluation.
[0053]Since skim milk and stabilizer dissociated, respectively and the sediment was made about the prototype A as shown in Table 5, organic-functions evaluation was not carried out. The organic-functions evaluation about the prototype B became a low value by all the items, especially showed one point and the minimum value about the goodness of the scent. The prototype C, D, and E and F add pomegranate fruit juice to pomegranate seed standard water extraction liquid. The organic-functions evaluation could sense sweet taste strong by pomegranate fruit-juice addition, and marks became high by many items. In particular, overall points showed three or more points with the prototypes E and F.
[0054]The growth of lactic acid bacteria to the fermented-drinks prototype E and change of the pH value were measured like the lactic-acid-bacteria growth examination in said pomegranate seed water extraction liquid, and were shown in Table 6 and drawing 4.
[0055]
[Table 6]

	0時間	4時間	8時間	12時間	16時間	20時間	24時間
乳酸菌数	8.9×10^{9}	1×10^{12}	9.7×10^{12}	2×10^{14}	4.9×10^{10}	1.7×10^{12}	7.1×10^{12}
pH値	4.52	4.58	4.59	4.57	4.57	4.52	4.47

[0056]Although the number of lactic acid bacteria (number of micro organisms) was falling compared with $9.7x10^{10}$ and 4 time-value $1.0x10^{12}$ with 8 time value, it increased with $2.0x10^{14}$ of the highest value with 12 time value, so that Table 6 and drawing 4 might show. Although it fell with $4.9x10^{10}$ in 16 time value, in 20 time value, it increased with $1.7x10^{12}$, and change in particular was not seen after it. The pH value fell gently after it, although about 4.57 and change were not seen up to 16 time value.
[0057](Evaluation of the lactic fermentation drink by a carbohydrate tolerance test) The carbohydrate tolerance test of the prototype E obtained by preparation of said lactic fermentation drink was done. It carried out as comparison also about water, pomegranate seed standard water extraction liquid, and pomegranate fruit juice (fruit juice which diluted the pomegranate fruit juice of the BRIX value 65**1 10 times (capacity)). The carbohydrate tolerance test was done by the following methods.
[0058](The carbohydrate tolerance test method) After making it abstain from food from the day

preceding an experiment overnight using the Wistar system male rat (n= 6) of four weeks old, the oral glucose tolerance test was done under no anesthetizing. Water (control), the lactic fermentation drink prototype E, pomegranate seed standard water extraction liquid, and pomegranate fruit juice (fruit juice which diluted the pomegranate fruit juice of the BRIX value 65**1 10 times (capacity)) were used for the test solution, and it was used by concentration as it is. Using the grape sugar liquid of 25 mass % which dissolved in the test solution, a medicine is prescribed for the patient into the stomach by a sound in taking orally so that grape sugar may be set to 2 g per weight Kg, Before administration, the blood sugar level was extracted from the caudal vein in after-administration 10 minutes, 20 minutes, 30 minutes, 60 minutes, and 120 minutes, and was measured using blood-sugar-determination apparatus DEKISUTA ZII (Bayer). The glucose tolerance test conducted the pursuit experiment every other day using the same rat altogether.

[0059]The result was shown in Tables 7-8, drawing 5 - 6. The result of the carbohydrate tolerance test was shown in Table 7 and drawing 5. The percentage to the value before administration showed the result of the carbohydrate tolerance test to Table 8 and drawing 6.

[0060]

[Table 7]

	投与前値	10分後	20分後	30分後	60分後	120分後
水（ｺﾝﾄﾛｰﾙ）	89.7 ±11.0	158.8 ±15.0	146.5 ±27.9	128.3 ±9.6	103.7 ±11.4	78.3 ±13.4
発酵飲料試作品E	114.0 ±17.3	154.5 ±15.3	134.3 ±14.2	111.2 ±8.6	102.3 ±13.7	82.0 ±10.2
ざくろ種子標準水抽出液	88.4 ±12.6	144.2 ±21.9	137.4 ±14.4	130.2 ±12.1	103.6 ±17.2	77.8 ±6.9
ざくろ果汁	95.5 ±15.2	153.7 ±28.8	140.2 ±18.0	109.8 ±15.2	89.0 ±7.1	75.5 ±4.8

[0061]a value -- average value**SD and unit (mg/100ml)

[0062]

[Table 8]

	10分後	20分後	30分後	60分後	120分後
水（ｺﾝﾄﾛｰﾙ）	178.0 ±14.2	164.1 ±33.2	145.3 ±23.7	116.1 ±11.4	87.4 ±9.8
発酵飲料試作品E	136.7 ±11.0*	119.5 ±16.7*	99.2 ±15.0**	91.4 ±17.3*	73.1 ±12.4
ざくろ種子標準水抽出液	164.6 ±26.7	157.7 ±24.3	149.3 ±21.1	118.8 ±23.4	89.6 ±15.2
ざくろ果汁	164.9 ±42.7	150.6 ±36.8	116.1 ±15.8*	94.4 ±11.7*	80.7 ±13.8

[0063]It is shown that the value to which average value**SD and the * seal of each item attached the value has a significant difference in control. *p<0.05, **p<0.01, a unit (%)

[0064]In control, it goes up to about 180% in after-administration 10 minutes, falls gradually henceforth, and, 120 minutes afterward, returned to the value before administration, and the typical blood sugar level curve was drawn so that Table 8 and drawing 6 might show. Although the fermented-drinks prototype E, pomegranate seed standard water extraction liquid, and pomegranate fruit juice (fruit juice which diluted the pomegranate fruit juice of the BRIX value 65**1 10 times (capacity)) as well as this became a peak 10 minutes after after administration, The blood sugar level of the fermented-drinks prototype E was as lower as 45% than about 135% and control, and changed low intentionally also in 20, 30, and 60 minutes. Although pomegranate seed standard water extraction liquid was ********(ed) and the significant difference was not seen, after 10 minutes, it was a tendency lower than control. The significant difference was not accepted although pomegranate fruit juice (fruit juice which diluted the pomegranate fruit juice of the BRIX value 65**1 10 times (capacity)) was a tendency lower than control after 10 or 20 minutes. However, it descended greatly 30 minutes afterward and the value lower than control was intentionally shown in 30 or 60 minutes. The above thing shows that the fermented-drinks prototype E has a sugar absorption control operation. From this, the fermented-drinks prototype E suppresses the rise of the blood sugar level, and it holds great expectations for diabetes prevention.
[0065]In the above example, although lactic acid bacteria showed the result of having used the Lactobacillus Lactobacillus bulgaricus, even if it used each bacillus of other Lactobacillus Lactobacillus acidophilus, streptococcus Streptococcus thermophilus, and a streptococcus RAKUTISU bacillus, the same result was obtained.
[0066]
[Effect of the Invention]As mentioned above, as explained in full detail, according to this invention, the fermented drinks of the new pomegranate which used effectively the strained-lees seed of the pomegranate fruit juice discarded conventionally are obtained. It is easy to drink these fermented drinks, and, moreover, its medical effects are high.

[Translation done.]

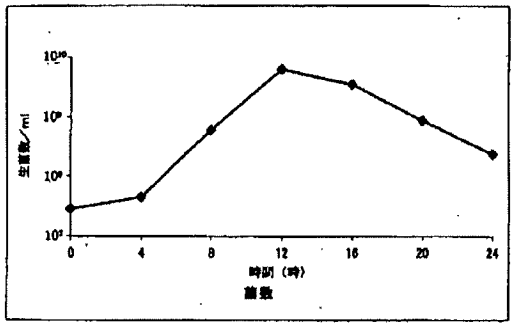
DESCRIPTION OF DRAWINGS

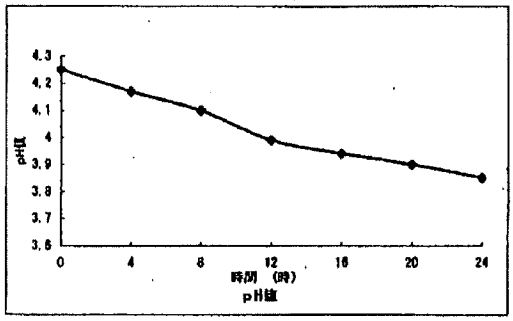
[Brief Description of the Drawings]
[Drawing 1]It is a figure showing the growth of lactic acid bacteria to pomegranate seed water extraction liquid, and change of a pH value.
[Drawing 2]It is a figure showing transition of the number of lactic acid bacteria when oligosaccharide is added, and a pH value in pomegranate seed standard water extraction liquid.
[Drawing 3]It is a figure showing the growth of lactic acid bacteria to pomegranate fruit juice, and change of a pH value.
[Drawing 4]It is a figure showing the growth of lactic acid bacteria to the lactic fermentation drink prototype E, and change of a pH value.
[Drawing 5]It is a figure showing the result of the carbohydrate tolerance test of the lactic fermentation drink prototype E.
[Drawing 6]It is a figure showing the result of the carbohydrate tolerance test of the lactic fermentation drink prototype E by the percentage to the value before administration.

[Translation done.]

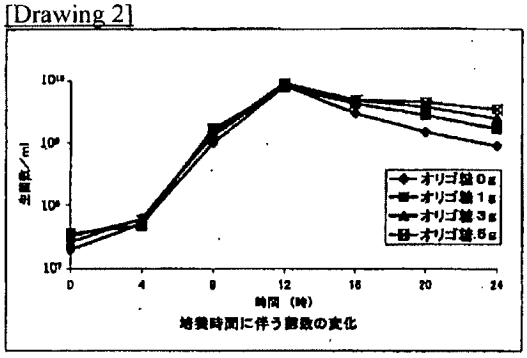
DRAWINGS

[Drawing 1]

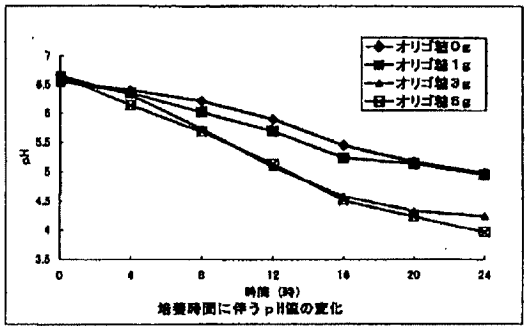




[Drawing 2]

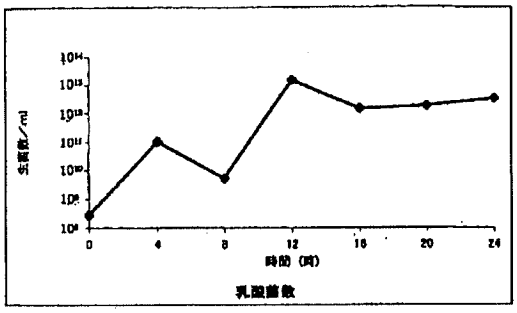


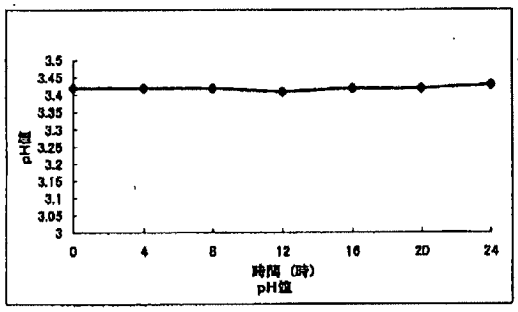
培養時間に伴う菌数の変化



培養時間に伴うｐＨ値の変化

[Drawing 3]





[Drawing 4]